

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A plasma processing apparatus for performing a process on a substrate by exposing the substrate to a plasma, the apparatus comprising:

a ~~first~~ chamber for accommodating therein the substrate;

~~a second chamber including of a dielectric top plate unit, the second chamber being~~
member disposed on an upper portion of the ~~first~~ chamber; [[and]]

an antenna having a plurality of slots for irradiating a microwave towards an inside of the ~~first~~ chamber through the top plate [[unit] member, the antenna being disposed on ~~the second chamber, the top plate member and being in close contact therewith;~~

a gas injection opening for supplying a processing gas into the chamber; and

a vacuum pump for exhausting the inside of the chamber,

wherein the top plate [[unit]] member includes:

a dielectric flat plate portion formed to face the substrate ~~and being in contact with the antenna;~~ and

a dielectric ~~side-wall~~ sidewall portion formed to extend from a peripheral region of the flat plate portion towards the substrate, and

wherein sides of the flat portion and the sidewall portion facing a plasma generation region have a curved surface extending between the flat plate portion and the sidewall portion
and the side-wall sidewall portion has a thickness not smaller than $\lambda_g/4$ but not greater than λ_g , λ_g being a wavelength of the microwave.

Claims 2-4 (Canceled).

Claim 5 (Currently Amended): The plasma processing apparatus of claim 1, ~~further comprising a gas injection opening for supplying a gas into the first chamber,~~ wherein the gas injection opening is disposed to inject the gas along the ~~side-wall~~ sidewall portion.

Claim 6 (Currently Amended): The plasma processing apparatus of claim 1, wherein an outer periphery of the ~~side-wall~~ sidewall portion is covered with a conductor.

Claim 7 (Currently Amended): The plasma processing apparatus of claim 1, wherein an inner shape of the ~~second chamber~~ top plate member is of a bell jar type.

Claim 8 (Canceled).

Claim 9 (Currently Amended): The plasma processing apparatus of claim 6, wherein a gap is provided between the ~~side-wall~~ sidewall portion and the conductor.

Claim 10 (Currently Amended): The plasma processing apparatus of claim 6, wherein the ~~side-wall~~ sidewall portion is in close contact with the conductor without having a gap therebetween.

Claim 11 (Currently Amended): A plasma processing apparatus for performing a process on a substrate by exposing the substrate to a plasma, the apparatus comprising:
a ~~first~~ chamber for accommodating therein the substrate;
a ~~second chamber including a dielectric top plate unit, the second chamber being~~
member disposed on an upper portion of the ~~first~~ chamber; [[and]]

an antenna having a plurality of slots for irradiating a microwave towards an inside of the first chamber through the top plate ~~[[unit]] member~~, the antenna being disposed on ~~the second chamber~~, the top plate member and being in close contact therewith;

a gas injection opening for supplying a processing gas into the chamber; and

a vacuum pump for exhausting the inside of the chamber,

wherein the top plate ~~[[unit]] member~~ includes:

a dielectric flat plate portion disposed to face the substrate; and

a dielectric ~~side-wall~~ sidewall portion formed to extend from a peripheral region of the flat plate portion towards the substrate, and

wherein sides of the flat plate portion and the sidewall portion facing a plasma generation region have a curved surface extending between the flat plate portion and the sidewall portion and a gap distance between the top plate ~~[[unit]] member~~ and the antenna is equal to or smaller than $\lambda_g/10$, λ_g being a wavelength of the microwave.

Claims 12-14 (Canceled).

Claim 15 (Currently Amended): The plasma processing apparatus of claim 11, wherein the ~~side-wall~~ sidewall portion has a thickness not smaller than $\lambda_g/4$ but not greater than λ_g , λ_g being a wavelength of the microwave.

Claims 16-17 (Canceled).

Claim 18 (Currently Amended): The plasma processing apparatus of claim 11, wherein an inner shape of the ~~second-chamber~~ top plate member is of a bell jar type.

Claim 19 (Currently Amended): The plasma processing apparatus of claim 11,
~~comprising a gas injection opening for supplying a gas into the first chamber,~~ wherein the gas
injection opening is disposed to inject the gas along the side wall portion.

Claims 20-22 (Canceled).